



# **HLA Evolution Process**

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# Purpose and Topics

- **Purpose**
  - Review 5 step HLA evolution process based on AMG-20 feedback
  - Outline plans for next two checkpoints (1.3 in February 1998 and 1.4 in August 1998)
  - Report on AMG-20 actions with respect to HLA process
    - Make the process more visible to broader HLA community
    - Develop a synchronization plan for specifications, supporting software and compliance testing
    - Develop a conops for cooperation with IEEE/SISO

## **HLA Evolution Process Basis for HLA Evolution**

*(from AMG16 presentation - no change)*

- **Changes/enhancements should be based on issues raised by users of HLA**
- **Changes need to be evaluated in terms of benefits and impacts on the HLA user community**
- **AMG is the focus for evolution including identifying issues, evaluating options for addressing the issues, and approving changes**
- **As other programs begin implementation of HLA, they will be represented in the AMG process**

# **Original TST Support to HLA Evolution Process**

*(from AMG16 presentation)*

- **TST members will be designated as focal points for key areas, they will form the core of the TST, and the TST will be the vehicle for integration across areas; current focal points are:**
  - **Bob Lutz: OM**
  - **Reed Little: IF Spec (API)**
  - **Richard Fujimoto: TM**
  - **Katherine Morse: DDM**
  - **Judith Dahmann: Federation Management (FM)**
  - **Phil Zimmerman: Security**
- **A series of technical exchanges in key areas have been held to begin to develop an experience base to support HLA evolution**

## HLA Evolution Process

# TST Support to HLA Evolution Process

*(updated to make clear role of tech exchanges)*

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  - Bob Lutz: OM
  - Reed Little: IF Spec (API)
  - Richard Fujimoto: TM
  - Katherine Morse: DDM
  - Judith Dahmann: Federation Management (FM)
  - Phil Zimmerman: Security
- Technical exchanges in key areas are held, lead by TST members, to
  - Develop an experience base to support HLA evolution
  - Address issues, review ongoing issues investigations, and proposed specification changes

# **Original Regular HLA Checkpoints**

*(from AMG16 presentation)*

- **The six month cycles discussed as part of HLA transition will serve as routine checkpoints in the HLA process**
- **One month prior to each checkpoint**
  - **progress of issue investigations will be checked**
  - **proposed changes in architecture and impact on specification will be evaluated**
  - **draft changes in specifications will be prepared for AMG review**
- **Focal points will be responsible for drafting and integrating changes across the specifications**
- **Checkpoints also provide timing for more marginal changes in specifications (e.g. text updates, deleting parameters)**
  - **Specs have comment forms; these will be maintained by DMSO and coordinated via the TST**

***First checkpoint is February 1997***

## HLA Evolution

# Regular HLA Checkpoints

*(updated)*

- Six month cycles will serve as routine checkpoints in the HLA process during the first two year of HLA transition; a move to one year cycles is anticipated thereafter pending experience
- During the AMG meetings leading up to each checkpoint
  - progress of issue investigations will be checked
  - proposed changes in architecture and impact on specification will be identified and evaluated
  - draft changes in specifications will be prepared for AMG review
- Focal points will be responsible for drafting and integrating changes across the specifications
- Checkpoints also provide timing for more marginal changes in specifications (e.g. text updates, deleting parameters) and inputs from HLA users outside the AMG technical community
  - Specs have comment forms; these will be maintained by DMSO and coordinated via the TST

## HLA Evolution

# Five Step Process Reviewed

*(from AMG16 presentation-no change)*

- **Step 1**
  - an AMG member expresses a need for a capability
- **Step 2**
  - a summary issue paper and investigation plan is developed
- **Step 3**
  - plan is executed and AMG monitors progress
- **Step 4**
  - recommended changes to HLA spec are drafted
- **Step 5**
  - AMG reviews recommended changes



## Original **Step 1: Program Need**

*(from AMG16 presentation)*

- Process begins with a need identified by an AMG member
- Program provides a description of what its specific requirements are and why the HLA does not meet those requirements
  - program may provide ideas of ways to evolve HLA to meet this need
- DMSO/TST
  - works with the program to review the need to ensure that current HLA capabilities are not adequate
  - assess the extent to which this need applies to other programs implementing HLA

***Where the need cannot be met by the HLA and is one which applies to other users of the HLA, then proceed to next step----->***

**Decision to take to AMG is made by AMG member and DMSO collaboratively, based on results of AMG technical exchanges where appropriate**

## HLA Evolution Process

### Step 1: Program Need

*(updated, add role of tech exchanges)*

- Process begins with a need identified by an AMG member
- Program provides a description of what its specific requirements are and why the HLA does not meet those requirements
  - program may provide ideas of ways to evolve HLA to meet this need
- DMSO/TST
  - works with the program to review the need to ensure that current HLA capabilities are not adequate
  - assess the extent to which this need applies to other programs implementing HLA, through tech exchanges as appropriate

*Where the need cannot be met by the HLA and is one which applies to other users of the HLA, then proceed to next step----->*

Decision to take to AMG is made by AMG member and DMSO collaboratively, based on results of AMG technical exchanges where appropriate

## **Original Step 2: General Issue Paper and Investigation Plan**

*(from AMG16 presentation)*

- **DMSO TST drafts a general issue paper which describes the issue in a way that goes beyond the initiating program requirement**
  - **may require bringing in other technical expertise in the area and coordinating with other programs with similar applications**
- **An issue team (IPT-like) is formed with balanced representation of AMG programs to investigate the issue and identify options for addressing the issue**
  - **include a TST focal point who will be responsible for coordinating activities in this area with the other HLA investigations**
- **Investigation plan will identify timelines in conjunction with HLA checkpoints, to allow for synchronization of resolution of ongoing issues in a coordinated fashion**

***Once issue is approved, and plan is in place, proceed to next step---->***

**AMG reviews paper and plan, and approves for execution**

## HLA Evolution Process

### Step 2: General Issue Paper and Investigation Plan

*(update to add role of tech exchanges)*

- **DMSO TST drafts a general issue paper which describes the issue in a way that goes beyond the initiating program requirement**
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- **An issue team (IPT-like) is formed with balanced representation of AMG programs to investigate the issue and identify options for addressing the issue**
  - **include a TST focal point who will be responsible for coordinating activities in this area with the other HLA investigations and conducting technical exchanges**
- **Investigation plan will identify timelines in conjunction with HLA checkpoints, to allow for synchronization of resolution of ongoing issues in a coordinated fashion**

***Once issue is approved, and plan is in place, proceed to next step---->***

- **AMG reviews paper and plan, and approves for execution**

## Original **Step 3: Plan Execution**

*(from AMG16 presentation)*

- The issue team will proceed on the schedule laid out in the investigation plan
- The AMG will be kept apprised of progress
  - Important for efficient, yet broad based HLA evolution
- As the investigation proceeds
  - Issue may become better understood and the paper may be updated
  - The team may recommend the issue be dropped based on the results of the investigation
  - New issues may be identified which would be addressed in their own right

***The investigation may lead to a recommended change in the HLA specifications, and then process proceeds to the next step--->***

**Issue team proceeds, shares technical progress at AMG technical exchanges, and provides regular updates to the AMG at AMG meetings, including previews of prospective specification changes**

## HLA Evolution Process

### Step 3: Plan Execution

*(updated to include technical exchanges)*

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Original

## Step 4: Draft Recommended Changes to HLA Specs

*(from AMG16 presentation)*

- The team will draft recommended changes to the HLA specifications
- The TST focal point will coordinate these changes and integrate results into the AMG recommended changes for consideration at the next HLA checkpoint

***Recommended changes go to the AMG for review and consideration, the next step in the process ----->***

- Issue team (made up of representatives of AMG and other affected HLA components) is responsible for formulating recommended draft changes in specification
- TST responsible for drafting, coordinating and integrating changes into draft specification updates

## HLA Evolution

### Step 4: Draft Recommended Changes to HLA Specs

*(updated to include technical exchanges)*

- The team will draft recommended changes to the HLA specifications
- The TST focal point will coordinate these changes using technical exchanges as appropriate and integrate results into the AMG recommended changes for consideration at the next HLA checkpoint

***Recommended changes go to the AMG for review and consideration, the next step in the process ----->***

- Issue team (made up of representatives of AMG and other affected HLA components) is responsible for formulating recommended draft changes in specification
- TST responsible for drafting, coordinating and integrating changes into draft specification updates



## **Original Step 5: AMG Reviews Recommended Changes**

*(from AMG16 presentation)*

- **The AMG reviews the proposed changes**
- **The benefits of the changes are assessed along with the costs of making the change**
- **The changes are then**
  - **approved for immediate incorporation,**
  - **approved for incorporation at a later checkpoint**
  - **held for later consideration,**
  - **sent back for further investigation, or**
  - **disapproved**

***Recommended changes are integrated into a revision in the specifications->***

- **AMG reviews/approves any changes**

## HLA Evolution Process

### Step 5: AMG Reviews Recommended Changes

*(no changes)*

- The AMG reviews the proposed changes
- The benefits of the changes are assessed along with the costs of making the change
- The changes are then
  - approved for immediate incorporation,
  - approved for incorporation at a later checkpoint
  - held for later consideration,
  - sent back for further investigation, or
  - disapproved

***Recommended changes are integrated into a revision in the specifications->***

- AMG reviews/approves any changes

## **Plans for Checkpoints 1.3 and 1.4**

- **Two checkpoints are scheduled for this coming year**
  - 1.3 in February 1998
  - 1.4 in August 1998
- **Plans for February checkpoint are underway**
  - continuation of ongoing activities following evolution process
  - format to support IEEE/SISO standardization process
- **Plans for August checkpoint need to begin**
  - propose December discussion of potential issues and plans

## Checkpoint 1.3 Plans

- **IF Spec**
  - **Format and packaging of specification**
    - **Format and carry forward in IEEE format**
    - **Revise and update supporting materials**
  - **Incorporate MOM into specification**
    - **1.3 target for MOM formalization (AMG-20)**
    - **Analysis of experience underway to support proposed spec additions**
    - **Work underway to assess options for incorporation**
- **OMT Specification**
  - **Format and packaging in IEEE format**
  - **Incorporate DDMT**
  - **Update extensions**
- **Recommendation: Incorporate OMT DIF and FED DIF into OMT and IF specifications**

## **Planning for Checkpoint 1.4**

- **Propose to address options/issues at AMG-22 in December**
- **Candidates**
  - **IF Specification**
    - **Federation Management**
      - ◊ **Logging/Playback**
      - ◊ **Save/Restore**
      - ◊ **Pause/Resume**
  - **OMT**
    - **Data specification**
- **Propose action item for AMG members to provide input to DMSO on other issues for discussion at next meeting**

## **Response to AMG-20 Actions Make Process More Visible**

- **Updated HLA Introductory Briefing to include explicit discussion of this process**
  - **Presented this at SIW Newcomers Education Session**
  - **Will present at both Army Advanced Distributed Simulation and Intelligence Community meetings this month**
- **Will incorporate discussion of the HLA evolution process into HLA education materials and Staff Officer Course HLA component**
- **Will post updated version on HLA home page**

## **Response to AMG-20 Actions**

# **Synchronize HLA Developments**

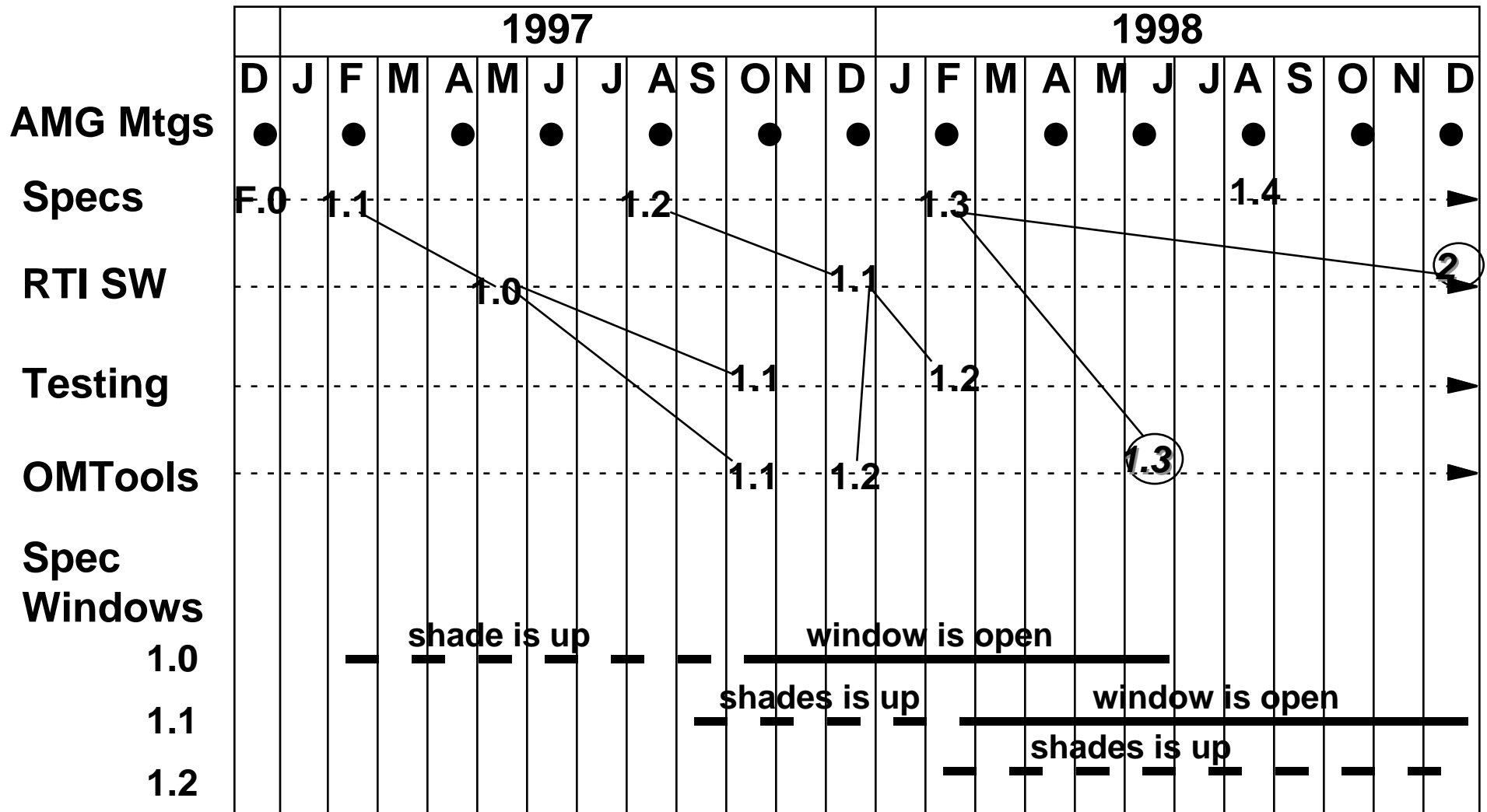
- **Need to synchronize the key aspects of HLA development**
  - **Specifications, supporting software, compliance testing**
- **Started with plan for continued six month checkpoints through 1.4, then consideration of moving to yearly checkpoints (1.5)**
- **Process**
  - **Brought together key players from the TST in these areas to draft and review strawman**
    - **Specification POCs, RTI and Tool development POCs**
- **Strawman synchronization provided for discussion at AMG-21, propose update at AMG-22 based on feedback**

# Spec Window Concept

- Define ‘Specification version window’ or ‘spec windows’
  - time period when different specification versions are in effect
- A ‘Spec Window’
  - Begins when a new functional specification is accepted by the AMG at a checkpoint
  - Ends when supporting software and compliance testing to that version of the spec ceases to be supported
- Two phases in a ‘Spec window’
  - Phase 1: ‘Shade is up’ (*you can see in...*)
    - begins with AMG acceptance of a version at a checkpoint
  - Phase 2: ‘Window is open’ (*you can reach in...*)
    - begins when key supporting software (DMSO RTI) becomes available
    - closes when this software is no longer supported
- Spec windows lengths respond to competing objectives
  - Longer windows to get more ROI on developments; window overlaps minimized due to cost considerations (no more than 2 open at once)



# Strawman HLA Synchronization



○ Dates not yet determined

## **Response to AMG-20 Actions**

### **CONOPS for Cooperation with IEEE/SISO**

- **Propose that SISO/SDG review process and HLA checkpoint process be conducted in parallel**
  - **HLA Spec 1.3 --- IEEE Draft1**
    - **HLA Spec 1.3 is target for submission in IEEE format**
    - **SDG assigned reviewers will be invited to participate in the review of 1.3 drafts (December/January)**
    - **1.3 Specification version will be released for public review (February)**
  - **HLA Spec 1.4 --- IEEE Draft 2**
    - **Both teams (TST and SDG) will consider changes proposed by both AMG process and IEEE open review process**
    - **Objective is for HLA Spec 1.4 and IEEE Draft 2 to present consistent view, this will be the balloted IEEE draft**
  - **IEEE Balloted Draft Review**
    - **Cooperative review of AMG proposed changes and comments on balloted version; Checkpoint 1.5 offers mechanism for AMG action**
- **Any divergences will be reported back to the AMG as the process progresses**